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Modern Lubrication Methods for Industry

By: C. I. KRAUS, Sales Manager

Alemite Division of Stewart-Warner Corp.

American Industry has now entered a new era — a period which promises to be the most competitive the world has ever known. The race to fill the pent-up demand for items so long absent from world markets is now on. Industry once again is vitally concerned with the advantages of holding favorable price positions in highly competitive markets. Accordingly, successful producers must seek out and endeavor to utilize every known device, procedure or method which will afford even the slightest reduction in manufacturing costs.

Industry is particularly looking to the manufacturers of production machinery and maintenance equipment for ways and means of reducing production costs, since economies must necessarily come as a result of more efficient machines and methods. Machinery builders will need to design more productive time into their machines. Producers of maintenance equipment must offer new and improved devices that will reduce the time required for performing maintenance operations.

The foregoing condition — the immediate demand for more economical production methods — is foremost in the minds of Industrial Management today.

Lubrication, being the most extensive and frequent maintenance service required in industry, offers significant opportunities for production economies. Cost savings are obtainable through the simplification of methods and the use of modern lubricating devices. More and more industrial plants are capitalizing on the cost saving potentialities of lubrication by fully exploiting the many advantages available to them through improved methods. Such lubrication methods involve far more than the mere act of supplying oils and greases to numerous bearings. In reality, proper lubrication involves procedures which may be termed "The Logistics of Lubrication." It includes (1) proper transferring, (2) proper handling and (3) proper application of lubricating oils and greases.

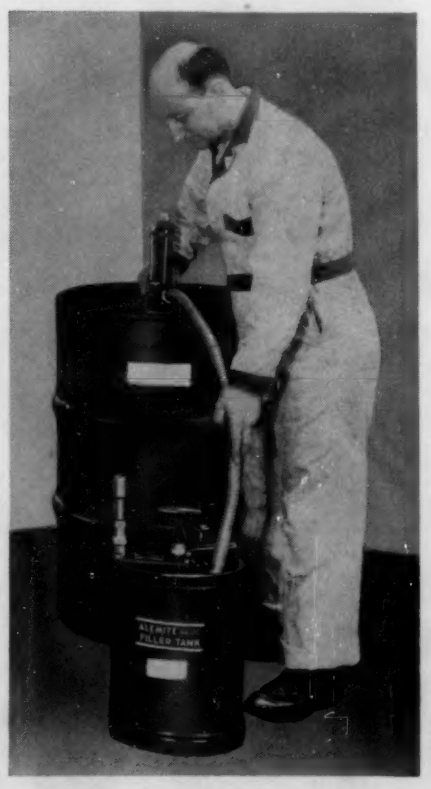

FIGURE 1

Many devices are available which provide greater overall efficiency in lubrication. Such devices readily eliminate waste of materials, loss of man hours and machine hours, prolong life of machinery and contribute to uninterrupted plant operations. They reduce the cost of transferring, handling and applying petroleum products.

TRANSFERRING LUBRICANTS

A typical device for transferring lubricant is illustrated in Figure 1. Similar transfer pumps, either hand or air operated, are used for transferring oils and greases from the original 100-lb. or 400-lb. drums into auxiliary containers, hand guns or power-guns. These air operated units will empty a drum of oil in two or three minutes and transfer lubricant at a rate of 20 pounds per minute.

The principal advantages to be gained by using modern transferring equipment are:

1. Speed of operation, savings in man hours.
2. Elimination of mess and waste of lubricant.
3. The prevention of contamination (because drums remain closed at all times).

LOADING HAND GUNS

Many bearing failures are blamed on lubricants, when that is not actually where the fault rests. Improperly handled, the highest quality lubricant becomes inferior to the poorest grease.

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OINTMENT BOXES FOR GREASE AND OIL TESTS

Conventional ointment boxes are specified in various ASTM procedures as follows:

1. D-217-44T, Part II, Petroleum Penetration.
   (3 plus or minus 0.1" dia. x 2" min. depth)
2. D-6-39T, Loss on Heating of Oil and Asphaltic Compounds.
   (2.17" dia. x 1.38" depth)
3. D-5-25, Penetration of Bituminous Materials.
   (Same as D-6-39T)

In addition the container used in 2 and 3 above has been specified for use with oils and greases in the determination of evaporation loss as described in CRC Designation L-25 and U.S.A. Ordnance Specification AXS-1575.

The containers commonly employed as meeting the above requirements has been pressed tin, Gill type, of 8-oz. and 3-oz. capacity as manufactured by the American Can Company.

These containers are not now available due to shortage of materials. We have found a commercial source of tins of almost the same dimensions fabricated of black iron with gold lacquer outside and clear inside. These are offered by—

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They are designated style No. 201, round type, sample boxes.

Since securing containers adaptable for use in the above specified tests has been a problem in many laboratories, this new source, reported by E. W. Adams of the Standard Oil Co. (Indiana) is given as an item of possible interest.

New Technical Bulletin
Published by A.B.E.C. - N.L.G.I. Cooperative Committee

The Cooperative Committee of the Annular Bearing Engineers and the National Lubricating Grease Institute has recently published Technical Bulletin No. 6, "The Norma-Hoffmann Oxidation Test for Lubricating Greases—Significance of Test and Recommended Test Procedure."

This new Bulletin amplifies the information contained in the previous Bulletin No. 4, and itemizes the improved test apparatus and procedure, the scope and significance of the test and the degree of reproducibility to be expected.

Copies of A.B.E.C.—N.L.G.I. Technical Bulletin No. 6 may be procured from National Lubricating Grease Institute, 164 Chandler Street, Buffalo 7, New York, at $.50 each.

The time-worn practice of filling grease guns by the hand and paddle methods has no place in present-day plant operations, because such methods contribute to inefficiency.

FIGURE 2

Filler type hand guns and gun loaders (Figures 2 and 3) are available to meet the requirements for clean, positive and rapid filling of grease guns. Such modern devices permit reloading of guns directly from the original lubricant containers without any danger of contamination. Guns are packed solid with lubricant in just a few seconds' time, without fuss, mess or waste and, furthermore, troublesome air pockets are completely eliminated.

FIGURE 3

FIGURE 4

Portable gun loaders (Figure 4) are used where machines are some distance from the oil room. In this way the oiler conveniently carries an adequate supply of lubricant with him on the job. By eliminating trips to the oil room, the oiler becomes more productive.

PORTABLE LUBRICATION DEPARTMENTS

Highly efficient, complete portable lubrication departments (as illustrated in Figures 5, 6 and 7) are now being used extensively in both large and small industrial plants and service industries. These portable units, with either electric or hand operated high pressure pumps, are equipped with guns, oil cans, tools, rags and all other equipment required for:

1. High pressure lubrication.
2. Filling Hydraulic Systems.
3. Servicing oil reservoirs.
4. Lubricating gear housings.
5. Refilling oil cans.
6. Reloading grease guns.

With a portable lubrication department the oiler simply loads the unit in the oil room, rolls it to each machine, servicing one department after another, for he is fully equipped to provide complete lubrication on the job. Experience has proved that portable lubrication departments place plant lubrication on a higher level and thereby give new importance to the oiler's job, thus assuring that his work will be done more completely and efficiently.

Portable lubrication departments contribute much to the planning of organized lubrication procedures. They permit more centralized responsibility for servicing machines by designated groups or by departments.

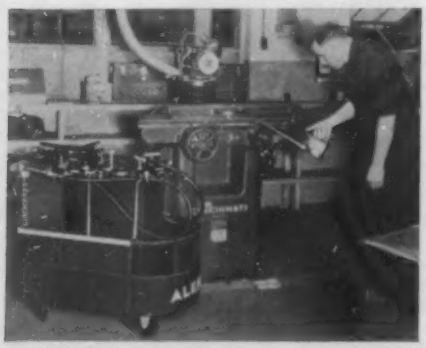

FIGURE 5

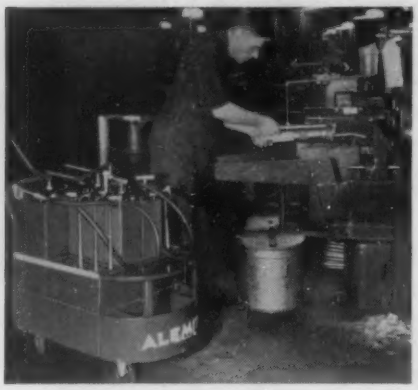

FIGURE 6

More economical lubrication is obtained by eliminating unnecessary trips to the oil room. The presence of adequate equipment eliminates messy handling and waste of lubricants and by keeping lubricants in closed containers all chance for contamination is eliminated.

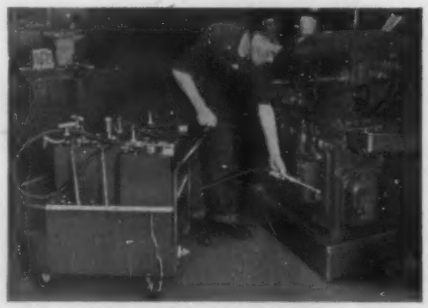

FIGURE 7

POWER LUBRICATION

The trend in industrial plants toward power lubrication has been accelerated by the stepped-up tempo of production methods.

Power lubricating equipment is being extensively used wherever the volume of work or lubricant delivery requirements make hand methods impractical. Powerguns provide maximum speed and efficiency because finger-tip control of lubricant under pressure permits instantaneous lubrication. This speed results in savings in man hours and in production time of machines normally shut

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FIGURE 8

own for lubrication. Powerguns minimize handling and reduce waste by dispensing measured quantities of lubricant. Also, bearings are more effectively serviced because the instant surge of lubricant flushes the old grease, dirt and moisture from the bearings.

Both portable and stationary power operated units are available for pumping lubricants from their original containers.

Stationary barrel pumps are widely used where it is essential to pipe lubricant to the points of application, such as requirements in steel mills and lubrication operations on production assembly lines.

Figure 8 shows a typical installation of stationary barrel pumps. Here three grades of oil and two grades of semi-solid lubricant are being pumped from the original drums to the floor above, where operators dispense lubricants through convenient hose and control valves.

In many plants the nature of the lubrication job is such that because of restricted space smaller capacity powerguns can be used more conveniently.

The electric powergun (shown in Figure 9) is well suited to a wide range of requirements in every industrial plant. With this unit the operator has complete control of lubricant under pressures up to 5,000-pounds per square inch. The 25-pound capacity and the maneuverability of the unit permit the operator to cover considerably more territory with greater efficiency.

CENTRALIZED LUBRICATION

Many important economies in the use of manpower are available to industry through Centralized Lubrication. Typical installations permit rapid and positive lubrication of more than 100 bearings in less time than was formerly required to fill a single grease cup. The design and construction of Centralized Systems provide positive assurance that all bearings will be serviced since any remote or inaccessible bearing cannot be overlooked. Centralized Lubrication provides positive assurance that each bearing will receive exactly the correct amount of lubricant.

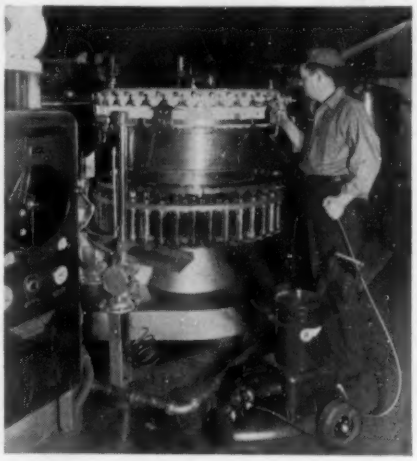
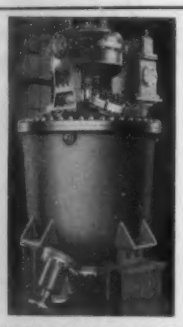


FIGURE 9

(To be continued)



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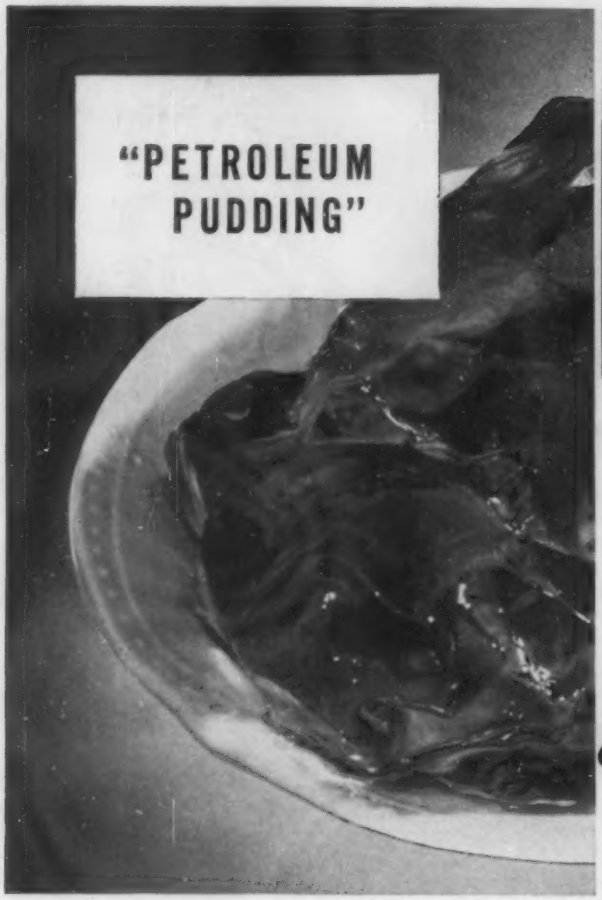

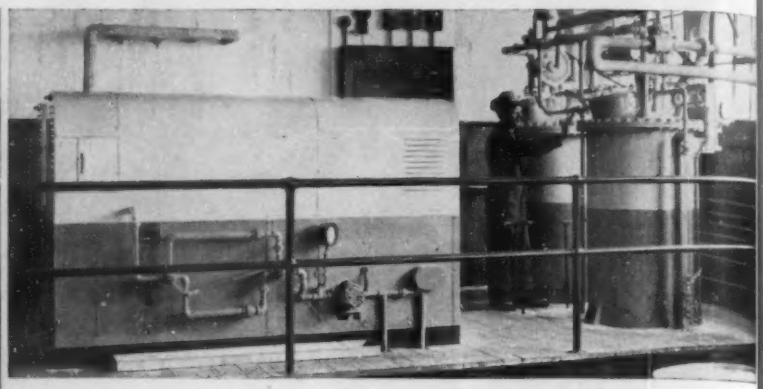

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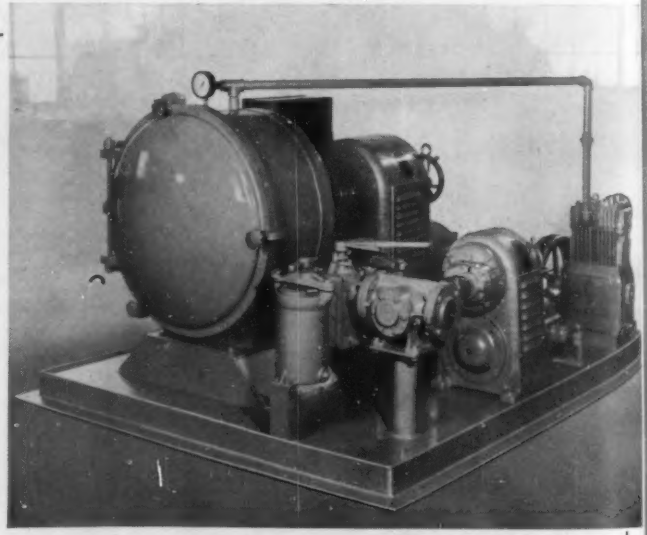

Grease Homogenizer, showing feed pumps, strainers and vacuum pump.

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